



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/708,110

02/10/2004

Bradford L. Moravec

02-0930

2109

27256

7590

10/18/2005

ARTZ & ARTZ, P.C.

28333 TELEGRAPH RD.

SUITE 250

SOUTHFIELD, MI 48034

EXAMINER

DEVORE, PETER T

ART UNIT

PAPER NUMBER

3751

DATE MAILED: 10/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/708,110

Applicant(s)

MORAVEC ET AL.

Examiner

Peter T. deVore

Art Unit

3751

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 July 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4-25,27-32 and 34-43 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-25,27-32 and 34-43 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1, 2, 4-22, 36-38, and 41 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation "said heat exchanger" in lines 4-5. There is insufficient antecedent basis for this limitation in the claim.

Claim 6 recites the limitation "air flow line" in line 4. There is insufficient antecedent basis for this limitation in the claim.

Claim 36 re-recites the limitation "an ejector" which was already recited in claim 34 from which it depends.

Claim Rejections - 35 USC § 102

The indicated allowability of claims 3, 23, and 39 are withdrawn in view of the newly discovered references to Leigh, Bragg, and Vardaman. Rejections based on the newly cited reference(s) follow.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

Art Unit: 3751

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 2, 4-10, 16-19, 22, 23, and 41 are rejected under 35 U.S.C. 102(e) as being anticipated by Leigh.

Regarding claims 1, 2, 4-10, 18, 19, and 22, the Leigh reference discloses an inerting system comprising a bleed air source (see para. 25, first sentence), a fuel tank/air separation and manipulation circuit associated with a center fuel tank (see para. 22, last sentence), an air separation module 36a, a controller 60, an ozone converter 16, a heat exchanger 18, a bleed air outlet 12e, a ram air inlet 66a, a ram air system 66, a temperature sensor 26, a filter 28, a main check valve 52, and a flow rate control valve and orifice 48. Regarding claim 16, see para. 44. Regarding claim 17, ram airflow is modulated via valve 68. Regarding claim 23, the Leigh device further includes shroud 34. Regarding claim 41, see para. 45.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 15, 24, 25, 27-31, 42, and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Leigh.

Regarding claim 15, the Leigh reference discloses an inerting system as discussed supra, but remains silent as to the oxygen level maintained in the fuel tank. since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum workable ranges involves only routine skill in the art. In re Aller, 105 USPQ 2336.

Regarding claims 24, 25, 27, 30, 31, 42, and 43, the Leigh system discussed supra inherently performs the claimed method including allowing higher oxygen level during a minority of flight conditions by using low-bleed air during climb or cruise mode (see paras. 42-45), but remains silent as to the actual range of oxygen levels maintained during the different flight conditions. However, it would have been obvious to maintain oxygen content level in the fuel tank at or below 12% for a majority of flight conditions, thereby minimizing exposure to oxygen content levels greater than 12%, and to allow the oxygen content level to exceed 12% for a minority of flight conditions, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum workable ranges involves only routine skill in the art. In re Aller, 105 USPQ 2336. Regarding claim 28, see para. 27. Regarding claim 29, see para. 26.

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Leigh in view of Hickey.

The Leigh reference discloses a system as discussed supra, but does not disclose a float valve in the fuel tank. However, the Hickey reference discloses a similar system including float valves 19 and 29 to prevent, among other things, reverse flow of

inerting gas. It would have been obvious to employ a float valve in the fuel tank of the Leigh system in view of Hickey to prevent reverse flow of inerting gas.

Claims 12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Leigh in view of Vardaman.

The Leigh reference discloses a system as discussed supra, but does not disclose a dual vent system with a check valve and a common air vent in the fuel tank. However, the Vardaman reference discloses an aircraft fuel tank T1 including a dual vent system V1 and V2 with check valves (see Figure 2a) and a common air vent L25 for venting the fuel tank while preventing fuel escape while allowing for extreme maneuvers (see col. 2, lines 1-7). It would have been obvious to employ a dual vent system with check valves and a common air vent in the fuel tank of the Leigh system in view of Vardaman for venting the fuel tank while preventing fuel escape while allowing for extreme maneuvers.

Claims 20, 21, 32, and 34-39, are rejected under 35 U.S.C. 103(a) as being unpatentable over Leigh in view of Bragg.

Regarding claims 20, 21, and 34-39, the Leigh reference discloses a system as discussed supra, but does not disclose an ejector in the fuel tank. However, the Bragg reference discloses a similar system including an ejector 16 in the fuel tank for mixing the ullage gas and the fuel for increased control of oxygen content in the ullage gas and fuel. It would have been obvious to employ an ejector in the fuel tank of the Leigh device in view of Bragg for increased control of oxygen content in the ullage gas and fuel. Regarding claim 32, the Leigh reference remains silent as to the oxygen level

maintained in the fuel tank. since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum workable ranges involves only routine skill in the art. In re Aller, 105 USPQ 2336.

Claim 40 is rejected under 35 U.S.C. 103(a) as being unpatentable over Leigh in view of Bragg as applied to claim 34 above, and further in view of Hickey.

The Leigh reference discloses a system as discussed supra, but does not disclose a float valve in the fuel tank. However, the Hickey reference discloses a similar system including float valves 19 and 29 to prevent, among other things, reverse flow of inerting gas. It would have been obvious to employ a float valve in the fuel tank of the modified Leigh system in view of Hickey to prevent reverse flow of inerting gas.

Response to Arguments

Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

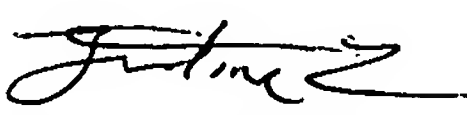
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter T. deVore whose telephone number is (571) 272-4884. The examiner can normally be reached on Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Justine Yu can be reached on (571) 272-4835. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Pd Pd


JUSTINE R. YU
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3700

10/14/05